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学　位　论　文

Interpretation -- An Analysis of Psycholinguistics

口译——来自心理语言学的分析

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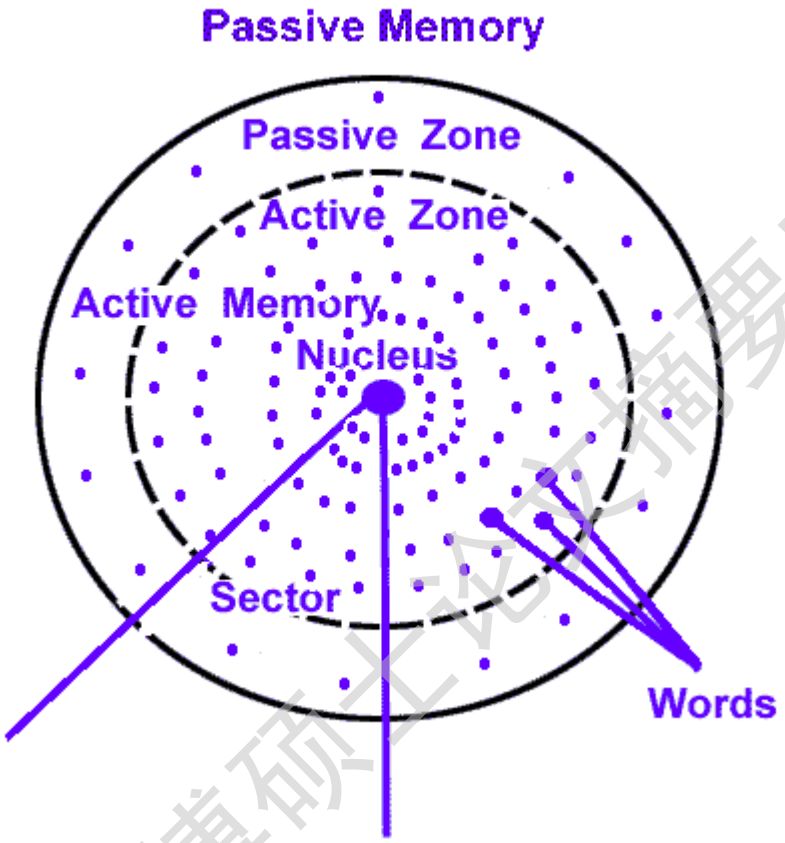
INTRODUCTION

Figure 2. The Modified Gravitational Model of Linguistic availability



The earth is becoming a global village. High technology and advanced telecommunication apparatuses make it possible for people throughout the world to communicate with each other. While distance matters little because jet planes can bring people to any imaginable places within hours, language becomes a big problem for mutual understanding and communication: people use different verbal symbols to express their viewpoints towards the universe. In order to exchange novel ideas for the benefit of the whole human race, they are in dire need of intermediators. Thus interpreters and translators become more and more important.

Unfortunately, the quality and quantity of interpreters and translators are far from demand in China, which is enthusiastically engaged in training interpreters. As far as an ideal interpreter is concerned, he must have some knowledge about psycholinguistics in addition to interpreting features and techniques.

Psycholinguistic research in interpretation is not new. The author in

this thesis tries to analyze the process of interpretation from a psycholinguistic view. The current thesis contains five chapters excluding introduction and conclusion.

What is interpretation is the question discussed in Chapter I. Interpretation is an oral transfer of a message from one language into another. It is generally known as having two forms: Consecutive Interpretation and Simultaneous Interpretation. As far as the process of interpretation is concerned, there are four classifications: interpretation can be divided into two, three, four or even five phases though the basic operations are generally accepted as comprehension and reformulation. Then the author comes to the psycholinguistics and its relationship with interpretation and points out the two cornerstones of psycholinguistics that have great significance in interpretation process analysis: the interface between thought and language and the nature of the evidence for the operation of the abstract language system. And then three typical models are presented in terms of information processing and semantic processing: Seleskovitch's Verbal-Nonverbal-Verbal Model, Moser's Perception-Understanding-Reproduction Model and Mackintosh's Organization-Condensation-Generation Model.

Chapter II elaborates on one of the two cornerstones of psycholinguistics in interpretation: the interface between thought and language. Spontaneous speech involves two superimposed processes in a cause and effect relationship: mental impulses (thought) and their oral expression (language). Thought inspires language and language monitors thought. They form a constant two-way flow. Interpreting, similar to spontaneous speech, is a process of speech-thought-speech, in which the words of the speaker becomes the thought of the interpreter and are then reconverted into speech by him. He appropriates the speaker's thought and then reformulates it in TL instead of formulating and developing his own thought.

Chapter III focuses on the knowledge requirement in interpretation. In order to accomplish his task successfully, the interpreter must possess sufficient linguistic and extra-linguistic knowledge. He should have acquired a perfect command of his working languages, knowing their phonetic features, vocabulary and grammar and text structures. He must be able to understand the spoken language on first hearing; he must be intuitive and articulate and possess a wide vocabulary; he must be able to apply his very broad and specific linguistic knowledge to a great many

fields. He is also required to know something about the situation, subject and the cultures of the speaker and the listener(s). In addition to the knowledge base with which the interpreter is to process the SL utterance, the interpreter should be sensible to what is essence and what is not in the original utterances. The former is called Primary Information in which meanings of words (language meaning) and meanings of a message (sense) differ from each other and sense is always the key point in interpreting. Secondary Information is composed of three types: Framing Information (FI), Linguistically Induced Information (LII) and Personal Information (PI). It serves a complementary function. When changes are called for reformulating message in the TL, the following order of priorities should bear in mind: LII, PI, FI.

Chapter IV concentrates on the Sequential Model and the Effort Model in interpretation. The Sequential Model refers to the mental process through which the interpreter systematically integrates the knowledge and then generates a grammatically plausible and logically acceptable TL text. He formulates a Meaning Hypothesis for a Translation Unit and then checks the hypothesis for plausibility. If this hypothesis is found not to be plausible, another one is constructed and goes through the same process. Only when the interpreter reaches a Meaning Hypothesis passing the plausibility test satisfactorily, does he move on to the next phase: the Reformulation of this Meaning Hypothesis in the TL. In this stage, fidelity requirement should be satisfied. When the test for the first Translation Unit produces satisfactory results, the process starts all over again for the next Translation Unit, and follows inter-relatively with the subsequent ones until the end of the text. The Effort Model is about how to scientifically make full use of the mental 'energy' which is available in limited supply. Five efforts are analyzed in details: Listening and Analysis Effort (L), Speech Production Effort (P), STM Effort (M), Coordination Effort (C) and Note-taking Effort (N) which is special for CI. L consists of all comprehension-oriented operations, from the analysis of the sound waves carrying the SL speech through the identification of words to the final decisions about the meaning of the utterance. P extends from the mental representation of the message to be delivered to speech planning and the performance of the speech plan. M contains three parts: encoding, storage and retrieval. STM and LTM are also explained here. N exists in the constant exercise of shifting information from Passive Memory to Active Memory. Familiar predications are not advocated to be written down because they leave deeper traces in the memory and thus are easy to retain and recall. The

predications introducing new participants, relationships and/or circumstances should be noted because they must use memory re-enforcers to recall and reproduce in the TL. As to the code in note-taking, SL is preferable. C is the effort required to coordinate the other efforts. Its aim is to make full and scientific use of the limited available processing capacity.

Chapter V mainly deals with some suggestions on the improvement of interpretation. Daniel Gile has suggested a Gravitational Model of Linguistic Availability: Nucleus, Orbits, Active Zone, Passive Zone and Sectors represent different linguistic aspects. To make the model more complete and scientific, the author modifies the Orbits of different magnitude into words density to show their activeness: the denser of the bodies and the closer their distance to the nucleus, the easier they are at the subject's disposal. In the modified model, Passive Memory and Active Memory are added, and the flexible Sector makes the difference between a specialist and a generalist. The model has five rules: the Centrifugal Principle, the Centripetal Effect of Stimulation, Stimulation Frequency and the Centripetal Effect, the Centripetal Effect of active vs. passive stimulation, the Escort Effect and Interference Effect. Based on these rules, the author proposed three methods to enhance the language proficiency of the student interpreter: choosing suitable materials, practicing more translating work and smart shadowing.

Now comes Chapter I, in which readers will have a general idea about what interpretation is in view of psycholinguistics.

CHAPTER I

INTERPRETATION IN VIEW OF PSYCHOLINGUISTICS

1 What is Interpretation

Ordinary English learners may be more familiar with ‘Translation’ than ‘Interpretation’, though both of them are commonly defined as the transfer of a message from one language into another. To a wider extent, ‘Translation’ covers both written translation (normally called ‘translation’) and oral translation (which is ‘interpretation’). In the current thesis, the author only focuses her discussion on the oral translation, that is, interpretation.

1.1 Interpreter

The person who does interpretation is called interpreter, whose mission is to ‘help individuals and communities to acquire a fuller knowledge and a deeper understanding of one another, and, what is still

more important, a greater respect for one another. Also to come to an agreement if they should want to do so.' [1] Thus the main purpose of interpretation is to help people speaking different languages understand and communicate with each other. People can see on the TV screen or in their daily life an interpreter standing between two heads of state, (this is the dream of most professional interpreters), or showing a group of foreign visitors around scenic spots, or helping them do some shopping. Some interpreter sits at a table in a press conference and some sits in a glass booth with headphones in an international symposium. Their work are benefiting people throughout the world who are in increasingly close relationship in the fields of science and technology, finance, commerce, information, environmental protection, etc.

1.2 Interpretation

What is interpretation? Interpretation is the process of listening to a speech delivered in one language and then repeating the same speech extempore in another language. It is commonly classified as Consecutive Interpretation CI and Simultaneous Interpretation SI. In consecutive, the interpreter gives his interpretation after the speaker has finished his speech which may last anywhere from a few seconds (a few dozen words) to several minutes (a few hundred or even a few thousand words). He therefore has time to analyze the message as a whole, which makes it easier for him to understand its meaning. In simultaneous, the speaker speaks continuously into a microphone; the sound of his voice is transmitted to the interpreter who, in turn, speaks in his own language into a microphone that transmits his words to those listening to that language. Therefore, the interpreter cannot wait for the speaker to develop his entire argument to understand the full implications of each sentence. He works on the message, bit by bit, giving the portion he has understood while analyzing and assimilating the next idea.

1.3 Process of Interpretation -- 4 Different Classifications

How many phases are there in the process of interpretation? Some hold that interpretation involves two basic operations: comprehension of the message in the source language (SL) and the reproduction of that message in the target language (TL). The latter is called ' reformulation' by Daniel Gile, professor in INALCO and ISIT, Paris. Jean Herbert, professor in School of Translation and Interpretation, University of Geneva, divided the process of interpretation into three parts:

understanding, transference and speaking. [2] Some suggests that, listening, comprehension, transference and delivery are four phases in interpretation and Kambiz Mahmoodzadeh of Allameh Tabutaba'i University, Tehran thought that the following five stages was appropriate: 1) receiving the message uttered in the SL; 2) comparing the message with the interpreter's SL competence; 3) decoding the message; 4) finding equivalents in the interpreter's TL competence; 5) presenting the subject in the TL. [3] However, no matter how many phases are suggested in the process of interpretation, two basic operations -- to understand and to be understood -- are essential.

Interpretation is not just a kind of verbal transfer process in its linguistic side. The interpreter goes beyond the meaning of linguistic sign by adding to them pertinent extra-linguistic information. How does this happen in the process of interpretation, the current thesis will analyze it from a psycholinguistic angel. In the following section, the concept of psycholinguistics and its relationship with interpretation will be presented, followed by some typical models in terms of information processing and semantic processing.

2 Interpretation in view of Psycholinguistics

2.1 Psycholinguistics and its Relationship with Interpretation

What is psycholinguistics? In *Collins Cobuild Essential English Dictionary*, psycholinguistics is defined as 'the psychology of language, including language acquisition by children, the mental processes underlying adult comprehension and production of speech, language disorders, etc.' It is made clearer in *The Encyclopedia of Language and Linguistics* as psycholinguistics 'is concerned with language abilities in the individual, and is formed around questions such as : How does a listener/reader recover a message from speech signal and/or written text?, How does a speaker/writer express ideas in terms of articulatory and/or graphological sequences?' . Obviously, the latter is much closer to the field the author is discussing. Psycholinguistics, as an inter-discipline, covers wide range of cognitive-semantics, language philosophy, psychology, linguistics, and speech science (phonetics). The following may be considered the cornerstones of psycholinguistics: 1)the biological foundations of language in the sense of the observable anatomical structures and physiological processes that serves as the substrate of human language abilities; 2) the nature of the language signals that are transmitted and received; 3) the interface between thought and language;

and 4) the nature of the evidence for the operation of the abstract language system, i.e. that part of language abilities which mediates between input and output, and which may function even when decoupled from the overt language signal.

The biological foundation of language (cornerstone 1) deals with the main properties of the human nervous system, the brain and language in the left and right hemispheres. It covers peripheral and central nervous system, cortical and subcortical structures of the cerebrum, and that left hemisphere plays an important role in speech production, etc. Though it provides general evidence for the nature of human language abilities, it has no pragmatic significance in interpretation process analysis.

The first phase of interpretation is listening and the last one is speech production. In CI, there is note-taking process which concerns writing systems. Thus, it is inevitably relevant to the transmitted and received language signals (cornerstone 2). However, the author will only touch upon this point in Speech Chain when discussing knowledge requirement for phonetics and in sensory encoding in memory effort because the nature of the language signals, describing how the speech signal and writing system work, can make little contribution to the improvement of interpretation, even they are thoroughly analyzed: it is out of the control of the interpreter and training methods can hardly make any change of the nature.

The two cornerstones left are to be elaborated in depth in the current thesis. Human thought could never have existed in all its complexity without the form and structure that language gives it, without language' s ability to express the finest shades of meaning. It is a unique characteristic of the mind of human beings that the constant two-way flow between linguistic encoding (language) and the non-verbal manipulating of concepts (thought). These are leading principles in the study of the process of interpretation. Words can conjure up a vast range of meanings and thoughts can find countless ways to express themselves. To study the interface between thoughts and language (cornerstone 3), in the field of interpretation process, is to find out how the words of the speaker become the thought of the interpreter and are then reconverted into speech by him. After all, interpretation is a process of speech-thought-speech.

The operation of the abstract language system (cornerstone 4), in

interpretation, is the sequential testing of fidelity, accuracy and plausibility of each Translation Unit and their integration as well as the allocation of limited available processing capacity. This involves the phases of listening, comprehension, transference and delivery, covering almost the entire mental activity of interpretation. Therefore, the author will explicitly analyze it in the following sections.

2.2 Psycholinguistic Analysis of 3 Typical Models

Though the overview of the relationship between interpretation and psycholinguistics is presented, it is advisable to look in depth some typical models in terms of information processing and semantic processing.

2.2.1 Seleskovitch's Verbal-Nonverbal-Verbal Model

In 1977, Seleskovitch of the Universite Paris III proposed a three phase operation in the process of interpretation: the first verbal, the second nonverbal and the third verbal again. The first phase involves auditory perception of a linguistic utterance that carries meaning, and recognition of words and phrases therein which are stored in short-term verbal memory. The second phase, by far the most important, involves comprehension of the sense or message of the utterance, which can only be attained by the addition of cognitive elements to linguistic meanings. The cognitive addition may be based on medium-term cognitive memory (contextual information) or on long-term cognitive memory (general knowledge). As soon as this previously acquired knowledge is merged with linguistic meanings the words of the discourse segment being processed are forgotten, but the sense they convey, dissociated from any language form, becomes part of cognitive memory. Hence, this second phase, which consists of the identification of sense, is considered nonverbal. The third phase consists of the reverbalization of the nonverbal sense in the TL. Seleskovitch emphasizes that the expression chosen in a TL rendering is not determined by the choice of linguistic expression in the SL but by the TL audience. The entire process of interpretation has been summed up by Seleskovitch as 'it is not a direct conversion of the linguistic meaning of the SL to the TL, but a conversion from SL to sense, the intermediate link being nonverbal thought, which, once consciously grasped, can then be expressed in any language regardless of the words used in the original language '. [(4)]

2.2.2 Moser's Perception-Understanding-Reproduction Model

In 1978, Moser, professor in University of Innsbruck, proposed an information-processing model in SI. This model consists of three stages. In the initial stage, the SL message reaches the ear of the interpreter in the form of sound-wave patterns and is received in the auditory receptor system where it goes through feature detection. The auditory signal is thereby transformed into a set of relatively discrete features that are placed in a brief temporary storage called pre-perceptual auditory storage. A primary recognition process, using the phonological rules of the SL stored in Long-term Memory (LTM), then synthesizes these features into a synthesized precept (a syllable), which is stored in synthesized auditory memory (SAM). Strings of perceptual units are next transformed into meaningful units or words through secondary recognition by matching the perceptual information in SAM to syntactic and semantic information for the SL in LTM. This results in a string of processed words, stored in generated abstract memory (GAM), somewhat equivalent of what is termed STM in other models.

In the second phase of the process, this string is further processed using syntactic and semantic information for the SL found in LTM, and meaningful phrase units are thus identified. Then begins the search for the meaning of the units in the conceptual base that is also found in LTM. Such a conceptual base consists of concepts and formal relations between them. Concepts contain not only semantic information, which is assumed to be language-independent, but also sensory, phonetic and syntactic information, which is language-specific. Through the identification of concepts and the activation of conceptual relations, the meaning of a phase unit is understood.

Now begins the third phase of the process: reproduction in the TL. This involves activation of the TL elements found in the conceptual network, as well as syntactic and semantic word processing and word-string processing on the basis of syntactic and semantic information for the TL stored in LTM. The result is a paraphrase in the TL of the SL message, which, once its accuracy has been verified against further SL output, can be expressed as TL output using TL phonological rules stored in LTM.

Whereas all the models outlined above touch upon the steps involved in the processing of a message, none presents systematic rules that govern

the passage from one stage to another. This work is done by Mackintosh (1985) who uses a model to explain both simultaneous and consecutive interpretation.

2.2.3 Mackintosh' s Organization-Condensation-Generation Model

This model specifies three sets of operations: 1) organization of the text into a coherent whole; 2) condensation of the full meaning of the text into its gist; and 3) generation of a new text from the memory traces of the comprehension process. It posits the organization of semantic structures on a number of levels, from microstructures to successive levels of macro-structures, each one being a condensation of any number greater than one of those below it.

Microstructures are derived from processing the surface structure of a discourse. The latter is interpreted as a set of propositions, some of which are presented in the surface structure and others inferred on the basis of general knowledge stored in LTM. These propositions, called micro-propositions, are processed by a working memory to establish coherence with the propositions already stored in STM (that is, the previous segment processed); the working memory seeks to establish argument overlap, either directly or through inference, between the proposition being processed and those stored in STM (approximately five). Once this is done, the proposition in working memory enters STM. The micro-propositions thus accepted constitute the microstructures of the model.

Microstructures are processed into macro-structures by application of three macro-rules: 1) deletion, whereby a proposition may be deleted if it is not necessary, directly or indirectly, to the interpretation of a subsequent proposition; 2) generalization, whereby a general proposition denoting an immediate superset may replace any sequence of propositions and 3) construction, by which any sequence of propositions may be replaced by one denoting a global fact of which the micro-propositions are normal constituents. In comprehension, the macro-rules, applied on the basis of determination of what is relevant to the text base, help to organize microstructures at a global macro-level. In production, an inverse process operates, with the deletion rule replaced by an addition rule, generalization by particularization, and construction by specification. These rules are applied to the macro-propositions resulting from the comprehension phase to reproduce micro-propositions in the

target text.

2.2.4 Conclusion

Though none of the aforementioned models presents a complete picture of the complex process of interpretation, they are not in contradiction with each other, either; because each emphasizes different aspects of the process. Thus Seleskovitch (1978a, 1978b) gives priority to the comprehension and conceptualization of sense; Moser (1978) focuses on the importance of LTM at every stage of the process; and Mackintosh (1985) concentrates on the rules by which semantic processing takes place. To a large extent, these different models are complementary to each other.

The whole process of interpretation, no matter it is viewed as Seleskovitch's Verbal-Nonverbal-Verbal Model, or Moser's Perception-Understanding-Reproduction Model, or Mackintosh's Organization-Condensation-Generation Model, is mainly composed of two phases of comprehension and reformulation. Guided by the two-way flow of speech-thought-speech in interpretation, the interpreter listens to the SL from the speaker first, identifying the phonetic representation of each segment of the SL message and understanding it in terms of its underlying structure and meaning in relation to the context. Such an analysis takes place as soon as the sound waves reach the interpreter's ear by using a kind of Meaning Hypothesis with the help of long-term storage of the lexicon and grammar of the SL. This sense of message is deprived of the linguistic form of SL, remaining as a concept. Thus the speaker's speech is turned to thought of the interpreter. In order to express this thought which comes from the outside source and becomes virtually his own thought after decoding, the interpreter has to encode the thought into TL version with the help of the lexicon and grammar of the TL which are also stored in LTM. Before putting this thought into speech in TL, the interpreter must constantly test the fidelity, accuracy, and plausibility of potential utterances. When the test produces satisfactory result, TL version is uttered and the reformulation phase ends up here.

To sum up, this chapter has so far discussed interpretation, the processing models of interpretation and the psycholinguistic analysis of these models. In interpreting, sufficient linguistic and extra-linguistic knowledge is required to facilitate comprehension and reformulation. The interpreter should be conscious of the sense in the primary information

against linguistic meaning. He should apply the knowledge to sequentially analyze incoming SL text and reproduce outgoing one in TL and make scientific use of limited available processing capacity to fulfill this difficult task. These will be discussed one by one in the following chapters. Yet it is advisable to first concentrate on the language and thought relationships, which is essential in interpretation and governs the entire process at macro-text level.

CHAPTER II

INTERPRETING -- A SPEECH-THOUGHT-SPEECH PROCESS

When people speak spontaneously, their words do not come out in spurts: they do not first think out what they are going to say and then stop thinking while they speak; nor do they stop speaking in order to mentally compose what they are going to say next. On the contrary, their speech is continuous. To be specific, it involves two superimposed processes in a cause and effect relationship: mental impulses and their oral expression. Seen in time, however, the words are uttered at the precise moment the following thought is conceived; at the precise moment the product of the conceptualizing process is uttered, the mind is already focused on further development of the thought which is to be expressed in the following statement.

Thought Inspires Language

There are no thoughts that are completely the product of one individual, or completely original. In any situation what one says is only the end product of a thought which is born of the input of countless outside sources which nourish people as children and enrich them as adults. Such a thought has no verbal structure before it is formulated. Therefore, it is the case that before people speak they know what they are going to say, but until they open their mouths they do not know exactly how they are going to say it. This spontaneous aspect of linguistic expression allows them to concentrate on the meaning of what they intend to say and to let the choice of words and tone more or less take care of themselves. They can consciously modulate their voice, their facial expressions, their gestures and their delivery speed to indicate different senses of an utterance, and can formulate the most complex thoughts with words that are at their disposal. Actually, speaking spontaneously requires performing three mental operations at the same time: thinking about the thoughts to be conveyed, expressing each idea aloud, and organizing and shaping the following thought on the basis of what has just been said. On the other hand, if people stop concentrating on the meaning of what they are saying and focus their attention on its form, they would probably stumble and be misunderstood. This is often seen in a speech contest with texts prepared beforehand. What the contender manages to do is to recite the text that was reread, corrected and revised after days or even weeks of painstaking efforts. The thought is formed in order in advance; the text is presented in its most satisfying form of wording, sentence structure, coherence, cohesion, etc. There is no thought train in the speech but continual and mechanical utterance of the language. Without thought, such a language loses its activeness and is considered a kind of artificial and superficial expression.

Thought triggers speech and the tone of voice and simultaneously reacts to them as well as to the listeners, i.e. their smiles or the movement of their heads, the approval or disapproval they exhibit. This indicates that the words people choose to convey what they mean depend not only on them but also on the person they are addressing and context in which they both find themselves. Thus the initial complete thought is fragmented by the speaker as he expresses himself and as he adjusts his expression to the audience.

Language Monitors Thought